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CPU for jet+met and pixels Tau id at HLT

for $L = 2 \times 10^{33} cm^{-2} s^{-1}$

Preliminary estimates for

>   **global jet finding at L2**

>   **MET calculation from towers**

>   **regional jet finding for tau's**

>   **pixel reconstruction for Tau id with pixels only**

**made with Pentium III, 600 MHz processor for
qcd_50_80 bin at low luminosity passed L1 Tau triggers**

CPU at L2 for global jet reconstruction, MET from E+H towers and regional Jet reco for H->2tau->2j case. preliminary

TimeMe reports from ORCA(message, counts, real cpu time)	qcd 50-80	qcd 120-170	H 500 GeV	H 200 GeV
Jet reconstruction in the entire calorimeter with iterative cone 0.5 , seed threshold 1 GeV* MET reconstruction from ecal+hcal towers.				
Reconstructing_EcalPlusHcalTowerBuilder 1000 201.610 seconds (cpu)	0.2 s/ev**			
Reconstructing_allJets 1000 215.850 seconds (cpu)	0.014 s/ev			
L2 MET calculation from towers 1000 5.420 seconds (cpu)	0.005 s/ev			
Regional Jet reconstruction for H->2tau->2Jet. Only towers used in cone 0.8 around L1 candidates. Iterative. cone 0.6, no seed threshold				
Reconstructing_1stL1tau 1000 3.710 seconds (cpu)	0.008 s/ev			
Reconstructing_2ndL1tau 839 3.510 seconds (cpu)				
Reconstructing_1stL1Cjet 211 0.790 seconds (cpu)				

* doesn't include time on Jet energy corrections

** E+H tower building time is huge probably due not optimal Cell navigation : matching of every
   (not empty) crystal to tower requires :
        - calculation of crystal position every time but not usage of hardwared positions
        - usage of HcalTowerBase::GetClosestCell which loop over all eta's and depths

better to use "matching" table (similar to EE trigger towers). how to do this ?

CPU for Tau id with Pixels for H->2tau->2j case

TimeMe reports from ORCA(message, counts, real cpu time)	qcd 50-80	qcd 120-170	H 500 GeV	H 200 GeV
Reconstruct pixel Rhits, pixel lines and vertices, define signal vertex and evaluate Tau isolation with pixel lines for calorimeter Tau candidates				
Pixel RHits reco (getData) 1000 58.030 seconds (cpu)	0.058 s/ev			
Reco pxl lines and vrtx (dolt) 1000 58.920 seconds (cpu)	0.059 s/ev			
Tau ID for 1-st jet 1000 0.310 seconds (cpu)	0.0006 s/ev			
Tau ID for 2-nd jet 781 0.280 seconds (cpu)				
Total time	0.118 s/ev			

Preliminary conclusion : looks like we are already at an acceptable level ~0.3 s/ev at L2 for 1GHz present CPU

(G. Bagliesi, private communication with P. Sphicas)

time performance may be further improved with optimized navigation for E+H tower building

we may use pixel vertex for jet direction at L2

(request from b-people to give jet direction from known vertex)